

REMARKS

Reconsideration and the timely allowance of the pending claims, in view of the following remarks, are respectfully requested.

In the Office Action dated January 4, 2005, the Examiner rejected claims 1-21, under 35 U.S.C. §102(b), as being anticipated by Aoyama '145 (U.S. Patent No. 6,697,145); and rejected claims 1-21, under 35 U.S.C. §103(a), as being unpatentable in view of Miyai '470 (U.S. Patent No. 5,825,470) and Aoyama '145. The Examiner also objected to the Abstract as containing minor informalities.

By this Amendment, Applicants have amended claims 1-2, 8-9, 15-17, 19, and 21 to provide a clearer presentation of the claimed subject matter. Applicants submit that no new matter has been introduced. As such, claims 1-21 are presented for examination of which claims 1, 8, and 15 are independent.

Applicants also submit a Replacement Abstract that includes the changes suggested by the Examiner. Accordingly, Applicants request the immediate withdrawal of the objections to the Abstract.

Applicants respectfully traverse the prior art rejections, under 35 U.S.C. §102(b) and §103(a), for the following reasons:

I. Prior Art Rejections of Claims 1-14 Under 35 U.S.C. §102(b) & §103(a).

Independent claim 1, as amended, sets forth a lithographic apparatus comprising, *inter alia*:

a projection system configured to project said patterned beam onto a target portion of said substrate . . .

a *conditioned chamber* . . .

an actuator configured to introduce at least one of said patterning device and said substrate into said conditioned chamber . . .

a carrier structure, coupled to said actuator, configured to support said at least one of said patterning device and said substrate during the introduction into said conditioned chamber . . .

an alignment system, disposed outside said conditioned chamber, configured to position said at least one of said patterning device and said substrate in alignment with said projected patterned beam of radiation by determining position and orientation of said at least one of said patterning device and said substrate relative to a reference point on said carrier structure and adjusting said position and orientation of said at least one of said patterning device and said substrate in accordance with said reference point.

As indicated above, amended claim 1 now positively recites the use of a carrier structure that is coupled to the actuator and is configured to support the patterning device and/or substrate during the introduction into the conditioned chamber. Claim 1 also positively recites that the alignment system, which is disposed outside the conditioned chamber, positions the patterning device and/or substrate in alignment with the projected patterned beam of radiation by determining the position and orientation of the patterning device and/or substrate relative to a reference point on the carrier structure and adjusting the position and orientation of the patterning device and/or substrate in accordance with said reference point. These features are amply supported by the embodiments described in the Specification. (*See e.g., Specification*, par. [0054] – [0055], [0058] – [0062]; FIGs. 2A-2D).

Unlike the present invention, there is nothing in the references of record, including the Aoyama '145 reference, that teaches the combination of features recited in claim 1. In particular, the Aoyama '145 reference discloses the use of a transfer arm 12, having a hand part 16 and a vacuum holding part, that transfers a wafer from chamber 1 that includes a coater 5 to a temperature- and pressure-controlled chamber 2 that includes a projection system 28. (*See e.g., Aoyama '145*: col. 5, lines 13-16; lines 26-40; col. 6, lines 6-25, line 65 – col. 7, line 8; col. 12, line 65 – col. 13, line 4; FIGS. 1-2). The wafer is pre-aligned via a positioning unit 17 that rotates the wafer to detect the radial length of the wafer, the center position of the wafer, and the angle of a cut portion of the wafer. (*See e.g., Aoyama '145*: col. 5, line 53 - col. 6, line 1, line 65 – col. 7, line 8; col. 12, line 65 – col. 13, line 4; FIGS. 1-2).

With this said, however, there is nothing in the Aoyama '145 reference that teaches or remotely suggests positioning the patterning device and/or substrate in alignment with the projected patterned beam of radiation by determining the position and orientation of the patterning device and/or substrate relative to a reference point on the carrier structure and adjusting the position and orientation of the patterning device and/or substrate in accordance with said reference point, as required by claim 1.

Therefore, the Aoyama '145 reference cannot be deemed to anticipate claim 1. Moreover, as best understood, none of the references of record can cure the deficiencies noted above. As such, Aoyama '145 cannot render claim 1 unpatentable.

For at least these reasons, Applicants submit that none of the references of record, including Aoyama '145, whether taken alone or in reasonable combination, teach the claimed combination of elements recited by amended claim 1. Accordingly, Applicants respectfully request the withdrawal of the rejection of claim 1 under 35 U.S.C. §§102(b), 103(a). In addition, because claims 2-7 depend from claim 1, claims 2-7 are at least patentable by virtue of dependency as well as for their additional recitations. Furthermore, because independent claim 8 recites similar features to claim 1, claim 8 is at least patentable for the reasons presented above regarding claim 1 and dependent claims 9-14 are also patentable by virtue of dependency as well as for their additional recitations.

II. Prior Art Rejections of Claims 15-21 Under 35 U.S.C. §102(b) & §103(a).

Independent claim 15, as amended, sets forth a lithographic apparatus comprising, *inter alia*:

a patterning device configured to impart a beam of radiation with a desired pattern in its cross-section, said patterning device being supported by a support structure . . .

a projection system configured to project said patterned beam onto a target portion of a substrate . . .

a conditioned chamber that houses said support structure . . .

an actuator configured to introduce said patterning device into said conditioned chamber . . .

an alignment system, disposed outside said conditioned chamber, to align said patterning device with said projected patterned beam of radiation.

As indicated above, amended claim 15 now positively recites that the conditioned chamber houses the support structure, that the actuator introduces the patterning device into the conditioned chamber, and that the alignment system, which is disposed outside the conditioned chamber, aligns the patterning device with the projected patterned beam of radiation. These features are amply supported by the embodiments described in the Specification. (*See e.g., Specification*, par. [0054] – [0055], [0058] – [0062]; FIGs. 2A-2D).

In stark contrast, there is nothing in the references of record, including the Aoyama '145 reference, that teaches the combination of features recited in claim 15. As discussed above, Aoyama '145 is directed to the pre-alignment of the wafer and the transfer of the wafer from one chamber to a temperature- and pressure-controlled chamber – there is, however, nothing that remotely suggests the pre-alignment and transfer of a patterning device, such as, for example, a reticle or mask. As such, Aoyama '145 clearly fails to teach an actuator that introduces the patterning device into the conditioned chamber and an alignment system, disposed outside the conditioned chamber, that aligns the patterning device with the projected patterned beam of radiation, as required by claim 15.

Given the deficiencies of the Aoyama '145 reference and the failure of the remaining references of record to cure such deficiencies, the Aoyama '145 cannot be deemed to anticipate or otherwise render claim 15 unpatentable.

For at least these reasons, Applicants submit that none of the references of record, including Aoyama '145, whether taken alone or in reasonable combination, teach the claimed combination of elements recited by amended claim 15. Accordingly, Applicants respectfully request the withdrawal of the rejection of claim 15 under 35 U.S.C. §§102(b), 103(a). In addition, because claims 16-21 depend from claim 15,

claims 16-21 are at least patentable by virtue of dependency as well as for their additional recitations.

III. Conclusion.

All matters having been addressed and in view of the foregoing, Applicants respectfully request the entry of this Amendment, the Examiner's reconsideration of this application, and the immediate allowance of pending claims 1-21.

Applicants' Counsel remains ready to assist the Examiner in any way to facilitate and expedite the prosecution of this matter. Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,
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